

### ATTACHMENTS

- Pages 1-2 of the Written Description Training Materials, Revision 1, March 25, 2008, available at <http://www.uspto.gov/web/menu/written.pdf>; and
- Data and Sequence Alignments for mutants of SEQ ID NO: 5 (two pages).

**REMARKS**

With this Response, claims 9, 18, 19, 36 and 37 have been amended. Claims 1-37 are pending. Claims 1-17 and 20-35 are withdrawn. Claims 18-19 and 36-37 are under consideration.

No new matter has been added.

Entry of the present Amendment after Final Rejection is appropriate as the instant amendment merely deletes recitation of SEQ ID NOs: 7 and 8. Thus, the claimed subject matter has already been searched and considered.

**Requirement for Restriction**

Applicants have previously submitted Remarks regarding the Restriction Requirement, including a request for rejoinder of claim 9, which claim is directed to an amino acid sequence encoded by the DNA of claim 18, as well as a request for rejoinder of claims 8 and 16-17, which claims, like those of elected claims 18-19, are directed to a fluorescent protein and DNA encoding a fluorescent protein from *Acropora* species. However, the Office Action does not indicate consideration of Applicants' previous Remarks in this regard. Accordingly, Applicants respectfully request that the Requirement for Restriction be reconsidered. In particular, Applicants again respectfully request rejoinder of one or more of claims 8, 9, and 16-17 with the elected subject matter at the Examiner's discretion.

Applicants also preserve their rights to submit the withdrawn claims in one or more suitable continuation and/or divisional applications.

**Information Disclosure Statement**

Applicants thank the Examiner for considering the IDS filed July 15, 2010, and for indicating the same by returning a signed and dated copy of the Form PTO-1449 with the Office Action.

Claim Rejections – 35 U.S.C. § 112, First Paragraph

The Office Action maintains the rejection of claims 18-19 under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement, and extends the rejection to new claims 36 and 37. In particular, the rejection asserts that although the claims “allow for a limited number of substitutions, deletions and additions to SEQ ID NOs: 6 and 8” the genus of DNA sequences claimed is “still too broad encompassing DNA encoding proteins with any of the 232 positions of SEQ ID NOs: 5 or 7 modified, up to 95.7% identity” (Office Action at page 4, last paragraph). The rejection further alleges that two embodiments of the invention of claims 18 and 19 were reduced to practice at the time of filing: SEQ ID NOs: 6 and 8, encoding SEQ ID NOs: 5 and 7, respectively (Office Action at page 4, first paragraph). The Office concludes therefrom that “the two single DNAs reduced to practice are not representative of the genus” (Office Action at page 4, last paragraph).

In response, and without acquiescing to the propriety of the rejection, Applicants submit that the claimed subject matter is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, Applicants submit that the Office’s rationale with respect to the written description rejection appears not to address several important factors with respect to the claimed invention. Initially, Applicants direct the Office’s attention to the Written Description Training Materials (Revision 1, March 25, 2008) available on the USPTO’s own website at <http://www.uspto.gov/web/menu/written.pdf> (Applicants further attach pages 1-2 therefrom as a courtesy). Page 1 of the Written Description Training Materials sets forth considerations for determining whether there is disclosure of a representative number of species which would lead one of skill in the art to conclude that the applicant was in possession of the claimed invention. These factors, which include (a) actual reduction to practice, (b) disclosure of structural chemical formulas, (c) sufficient relevant identifying characteristics (e.g., disclosure of complete structure and/or physical/chemical properties), (d) method of making the invention, and (e) level of skill and knowledge in the art, weigh in Applicants’ favor.

In particular, Applicants submit that that the level of ordinary skill in this art is high, and that fluorescent proteins are generally well known and have structures which have been well characterized. Applicants also submit that in view of Applicants' detailed description of how to make the claimed invention, as well as the description of the complete structure and chemical properties for at least two members of the claimed genus, one of ordinary skill in the art could easily conclude that Applicants were in possession of a genus of polynucleotides encoding a fluorescent protein having one to ten amino acid deletions, substitutions, and/or additions with respect to SEQ ID NO: 5.

Applicants further submit the attached data for SEQ ID NO: 5 (MiCy) and mutants thereof (including SEQ ID NO: 7, i.e., MiCy2) having one to ten amino acid deletions, substitutions, and/or additions for the Examiner's consideration. In particular, Applicants submit herewith a sequence alignment of complete sequence structures for mutants of SEQ ID NO: 5, along with their corresponding excitation and fluorescence peaks. Applicants note that the parameters for the sequence comparison are as follows:

Anaylsis software : DNASIS;

Multiple Editor Mode;

Automatic (higgins);

Gap Penalty: 5;

K-tuple: 2;

No. of Top Diagonals: 10;

Window Size: 5;

Fixed Gap Penalty: 10; and

Floating Gap Penalty: 10.

Applicants submit that the attached data further evidence that Applicants were in possession of the claimed subject matter at the time the application was filed.

Further, Applicants submit that there is a strong presumption that an adequate written description of the claimed invention is present when the application is filed (*See* MPEP § 2163 citing *In re Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA) (“we are of the opinion that the PTO has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims”). Indeed, “[a] description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption” (MPEP § 2163). Applicants submit that the Office has not presented “sufficient evidence or reasoning” to rebut the presumption with respect to the instant claims.

Applicants further submit that the “Background Art” section of the specification discloses that various GFP mutants changed in color, having improved folding properties, enhanced luminance, or modified pH sensitivity are known and have been prepared based on random mutagenesis techniques and semi-rational mutagenesis techniques. Applicants further submit that the “specification need only describe in detail that which is new or not conventional” (*See* MPEP 2163, citing *Hybritech v. Monoclonal Antibodies*, 802 F.2d at 1384, 231 USPQ at 94; *Fonar Corp. v. General Electric Co.*, 107 F.3d at 1549, 41 USPQ 2d at 1805). Thus, Applicants submit that the Specification need not describe in detail each and every position within each and every member of the claimed genus of DNAs which can be deleted, substituted, or added, in order for the skilled artisan to reasonably conclude that Applicants were in possession of the genus of DNAs claimed at the time the application was filed.

Based at least on the foregoing, Applicants submit that the claims do comply with the written description requirement, and that the claimed subject matter is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Accordingly, Applicants respectfully request reconsideration of the rejection under 35 U.S.C. § 112, first paragraph (written description), and withdrawal of the same.

Claim Rejections – 35 U.S.C. § 102

The Office Action maintains the rejection of claims 18-19 under 35 U.S.C. 102(a) as allegedly anticipated by Karasawa et al. (*Biochem. J.* **381**:307-312, 5 April 2004; hereinafter “Karasawa”) and extends the rejection to claims 36 and 37.

In response, and without acquiescing to the propriety of the rejection, Applicants submit the claimed subject matter is not anticipated by Karasawa. In particular, Applicants note that recitation of SEQ ID NO: 7 has been deleted from the claims. Applicants further submit that the Examiner previously found that the Japanese priority document teaches a fluorescent protein of SEQ ID NO: 5 and the DNA encoding it (Office Action at page 7, lines 3-5). Thus, at least insofar as the Office has previously found written description support for SEQ ID NO: 5 and DNA encoding it, Applicants submit that the claimed subject matter is not anticipated by Karasawa.

Applicants thus respectfully request the Examiner to reconsider the translation of the priority document for its impact on the present rejection under 102(a).

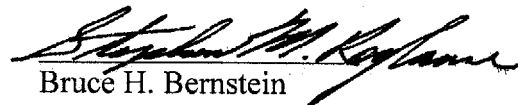
Based at least on the foregoing, Applicants respectfully submit that the claimed invention is not anticipated by Karasawa. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(a).

### CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request withdrawal of the rejection of record and allowance of the claims. If the Examiner has any questions or wishes to discuss this application further, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

The Patent and Trademark Office is hereby authorized to charge Deposit Account No. 19-0089 any fee necessary to ensure consideration of the submitted materials.

Respectfully Submitted,  
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December 6, 2010  
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